

**Abstract**

The present invention discloses a process of applying onto substrates thin film coatings of porous ceramic incorporating metal particles and composites obtained by this process. The process includes applying solutions of organic precursor(s) of porous ceramic(s) and organic precursor(s) of a metal or metals onto a substrate, drying and decomposing the precursors to form a composite. The obtained composites can vary greatly in structure depending on the physical properties of the substrate, the ceramic precursor(s) selected for the application and the post-treatment operations, and may be used in preparing catalysts, gas sensors, and for depositing thin metal films and other applications.